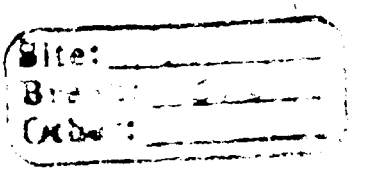

SIRRINE

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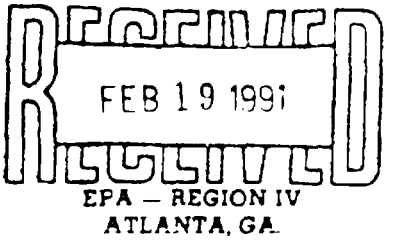
February 15, 1991

VIA FEDERAL EXPRESS

United States Environmental Protection Agency
Region IV
345 Courtland Street
Atlanta, Georgia 30365



Attention: Mr. Jon Bornholm

Re: Final RI Report Submittal
Medley Farm Site
Phase I and II
Sirrine Project No. G-8026

Dear Jon:

Enclosed is our response to Agency comments on the Draft RI Report for this site and four complete bound copies of Volume I (complete text) of the referenced report. One additional camera ready copy of Volume I is also included as requested. Since only a few minor changes were made to the appendices of this document (Volumes II and III), five sets of errata sheets and five sets of "Final RI Report" covers for these volumes have been submitted as discussed. Additions or changes to these appendices included with this submittal are as follows:

• Appendix D (correction)	Core Boring Report for Boring No. BW106
• Appendix E (addition)	Foster-Dixiana sand grain size data for filter sands used for monitoring wells.
• Appendix L (Addition to Ground Water Analytical Results - Phase II)	Correspondence from Sirrine (dated February 11, 1991) and Radian (dated February 7, 1991) explaining the re-analysis of ground water samples from monitoring wells SW1, BW1, BW4, and SW106.

•	Appendix K (addition)	Rock Core Photography - Not included in draft submittal.

In addition to the specific changes indicated in our response to Agency Comments on the Draft RI Report, minor changes have been made to the following sections of the Final Report text to provide further clarification of apparent Agency concerns: 3.3, 3.8, 4.1.2, 5.4 and 5.7.7.

Please do not hesitate to contact me at 803/234-3042 if you have any questions concerning this submittal or if additional copies are required.

Sincerely,

SIRRINE ENVIRONMENTAL CONSULTANTS, INC.

James S. Chamness, P.G.

Manager, Hydrogeologic/Geotechnical Field Services
Project Manager

cc: Mr. Keith Lindler - SCDHEC (letter only)
Mr. Ted Valerio - National Starch
Ms. Mary Jane Norville - King & Spalding
Mr. Phil Conner - Ogletree, Deakins, Nash, Smoak and Stewart
Ms. Nancy Peterson - Quarles & Brady
Mr. William Gunn - Holcombe, Bomar, Wynn and Gunn
Dr. Dave Hargett - Sirrine
Project File

RESPONSE TO AGENCY COMMENTS (DATED JANUARY 22, 1991)
ON THE:

DRAFT REMEDIAL INVESTIGATION REPORT - PHASE I AND II
MEDLEY FARM SUPERFUND SITE

February 15, 1991

Prepared by: SIRRINE ENVIRONMENTAL CONSULTANTS
GREENVILLE, SOUTH CAROLINA

Sirrine Project No.: G-8026

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
1.	General	The third paragraph of the Executive Summary will be amended to include the following sentence: "The results of Baseline Risk Assessments performed for this site will be included in the Feasibility Study Report."
2.	General	Potential risks associated with the low levels of PCBs present at the site will be considered in the Baseline Risk Assessment. See response to comment No. 1
3.	General	Due to the scattered nature of the source area at this site and the resulting random occurrence of different volatile organic contaminants in soils and ground water, isoconcentration maps of VOCs concentrations present at this site would be misleading. The interpolated limits of the total VOC plume in ground water will be added to figures 5.2 and 5.3.
4	Page 2, Section 1.0 fourth paragraph	This paragraph (last sentence) will be revised to state: "Phase II RI studies were performed during August through November, 1990 following EPA (the lead agency) approval and direction to proceed. Although EPA forwarded a copy of the Phase II Work Plan to SCDHEC, SCDHEC did not respond

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
		until after EPA directed that the work proceed. SCDHEC's comments were generally consistent with EPA's. To the extent that additional concerns were raised by SCDHEC, changes were made and implemented with the approval of EPA to address those concerns." See response to comment No. 11.
5	Page 3, Section 1.0 third bullet	This statement is consistent with the original approved Work Plan (Section 3.6.5) and the approved Project Operations Plan (Section 5.7).
6	Page 5, Section 1.0 first paragraph	VOCs are assumed to be absent in representative background soils at this site, therefore the approved Work Plans did not call for VOC analyses of background soil samples.
7	Page 6, Section 1.0 fifth bullet	A reference to the two deep bedrock wells where ground water was not encountered will be added. These wells are BW111 and BW112.
8	Page 7, Section 1.0	The first sentence of the second paragraph will be revised to read "To further delineate the vertical extent of contamination detected in ground-water samples collected from the fractured bedrock at BW105, two deep bedrock wells (BW111 and BW112) were added to the Scope of the Phase II RI in late September, 1990 after consultation with and approval from the EPA RPM". This is consistent with our response to the Agency's comment No. 31 on the Phase II RI Work Plan and our conference call with the Agency on August 9, 1990.
9	Page 7, Section 1.0 third paragraph	It appears that your comment refers to page 7 (not 8.) This error will be corrected. the two background wells are BW1 and SW1.

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
10.	Page 8, Section 1.0 fourth bullet	See response to comment No. 2.
11.	Page 12, Section 1.1.1 second paragraph	Phase II RI field work was initiated on August 8 in accordance with the EPA directive to proceed. The reference to July will be corrected in the Executive Summary. See response to comment No. 4.
12.	Page 16, Section 2.1.1 first bullet, last sentence	The referenced typo will be corrected.
13.	Page 17, Section 2.1.3	The referenced example will be changed to SW3 to avoid any potential confusion.
14.	Page 18, Table 2.1	Footnotes on Table 2.1 will be corrected for accurate correlation.
15.	Page 18, Table 2.1	See response to comment No. 14. Footnotes were mislabeled.
16.	Page 20, Section 2.2 second paragraph, second sentence	Figures 2.1, 2.2 and 2.3 are referenced. The site location is illustrated on Figures 2.2 and 2.3. Figure 2.1 includes the approximate boundaries of the Ralph Medley property as well as sampling locations.
17.	Page 28, Section 2.2.3	The following sentence will be added to the end of the first paragraph on page 25 where these wells are first mentioned: "The locations of domestic water supply wells sampled by SCDHEC during their investigations in 1983 and 1984 are shown on Figure 2.5."
18.	Page 28, Section 2.2.3	The referenced typo will be corrected.
19.	Page 30, Section 2.2.4 third sentence	The referenced sentence will be replaced with the following: "One private water well (the Ralph Medley

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
		well) is present on the Ralph Medley property but has not been sampled since hydrogeologic investigations performed during this study indicate that the Ralph Medley domestic water supply well is located upgradient of the former disposal site".
20.	Page 40, Section 3.2.2	The complete soil gas survey final report, including all figures, is contained in Appendix B of this RI report.
21.	Page 42, Section 3.3.1	TP15 should have been included in the list with TP11, TP12, TP13 and TP16. This addition will be made to the first bullet below Phase IB.
22.	Page 42, Section 3.3.2 second paragraph, last sentence	The following sentence will be added to that paragraph: "All test pits fully penetrated any fill material present at the site and were terminated only after natural, undisturbed residual soils or saprolite were observed at the bottom of each excavation by the field geologist".
23.	Page 50, Section 3.3.3 first paragraph, last sentence	The following sentence will be added: "All test pits excavated during this phase of the RI were also extended completely through any fill present at the site well into natural, undisturbed residual soil or saprolite."
24.	Page 51, Section 3.4.1 first sentence	This sentence will be revised to state: "Surface soil samples were collected and analyzed during the Phase II RI primarily to...."
25.	Page 51, Section 3.4.1 first paragraph, first sentence	See response to comment No. 24.
26.	Page 52, Section 3.4.2 first paragraph	The following sentence will be inserted into the first paragraph: "Samples collected for PCB analyses were collected using stainless steel hand augers in accordance with all surface soil sampling protocols approved for this project".

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
27.	Page 52, Section 3.4.2 first paragraph	Noted. Corrected.
28	Page 62, Figure 3.5	The potential need for additional sampling or additional wells in this area will be considered during Remedial Design.
29.	Page 65, Section 3.7.1 top of page	The following sentence will be inserted following the reference to BW2: "Therefore, the proposed saprolite well (SW2) was not installed at the site".
30	Page 66, Section 3.7.1	Saprolite well SW104 was installed in place of ground-water sampling with the hydropunch at the proposed HP104 location. Since no contaminants were detected in ground-water samples collected from SW104 and subjected to quick turn around VOC analysis, no additional wells were installed in that area in accordance with the rationale included in the approved Phase II Work Plan. The decision not to install any wells at the proposed SW107/BW107 location was based upon the results of quick turn around analyses of samples collected from SW106 and BW106. Initial hard copy results submitted to Sirrine indicated that no VOCs were detected in either of those samples, SW106-1 or BW106-1. When final electronic data files were received during report preparation it was noted that two volatile organic compounds were actually detected in sample BW106 at low levels only slightly above SQLs (2-Butanone at 13 ppb and 1,1,1-TCA at 5.2 ppb).
31.	Page 67, Figure 3.6	This figure was submitted separately due to the omission. Figure 3.6 will be included with the revised text.
32.	Page 74, Section 3.8.2	Water pressure testing was not performed at BW105 due to logistical considerations late in the project schedule.

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
		This statement will be added as the second sentence to this paragraph.
33.	Page 75, Section 3.8.2	Water pressure tests were run in deep wells BW111 and BW112 to demonstrate the low permeability of the rock mass penetrated by those wells. The last sentence in that section will be revised to state: "Hydraulic conductivity values obtained from water pressure tests in the bedrock range from 7.09 x 10^{-5} to 4.3 x 10^{-4} cm/sec except in the deep bedrock wells (BW111 and BW112) which yielded hydraulic conductivities of 8.49 x 10^{-7} and 7.82 x 10^{-7} cm/sec respectively.
34.	Page 77, Section 3.8.3	The range of values has been corrected.
35.	Page 79, Section 3.9.4 first paragraph	Preliminary samples collected from the four new wells referenced (SW101, SW102, SW103, and SW104) were analyzed non-CLP. The subsequent sentence referring to CLP analysis will be deleted. The actual sample numbers will also be added to the text for further clarification.
36.	Page 79, Section 3.9.4 first paragraph	The analytical data for samples analyzed on a quick-turnaround basis is included in Appendix L in the subsection labeled Ground Water (Phase II). The results of non-CLP analyses are summarized on a separate, one page, table which is included as the first page of this subsection in Appendix L. An appropriate reference will be added to this paragraph of the text.
37.	Page 79, Section 3.9.4 first paragraph	The reference in this paragraph will be amended as follows for further clarification: "The results of these preliminary analyses were used to determine final monitoring well locations in accordance with Figure

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
		4.1 of the Phase II Work Plan. The rationale presented in the Phase II Work Plan involved the consideration of the absence or presence of contaminants in these preliminary analytical results to determine the final locations and number of monitoring wells installed during Phase II. This rationale was presented in detailed in the approved Phase II Work Plan.
38.	Page 79, Section 3.9.4 first paragraph	*See response to comment No. 35.*
39.	Page 80, Section 3.9.4 top of page	The addition of these deep wells involved significant additional cost and considerable effort to complete within the already tight schedule for this phase of the RI. The information obtained from these wells enhances the overall understanding of site conditions. Approval for the installation, locations and depths of these wells was obtained verbally (telephone) by the Superfund RPM for this project. Formal documentation of this approval is not available.
40.	Page 81, Section 3.10.2	The following sentence will be added to this paragraph: "Surface water and sediment samples were analyzed for TCL volatile and semi-volatile organic compounds following full CLP protocol".
41. and 42.	Page 83, Section 3.11.3	The locations of staff gauges are shown on Figure 3.2. The reference will be corrected.
43.	Pages 86-88, Figures 4.2, 4.3, and 4.4	Sampling of the existing monitoring well network has provided data sufficient to define the horizontal and vertical extent of contaminants in ground water to support the FS for this site. Contaminants of concern and concentration ranges present at the site

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
		have also been adequately defined. Potential variations of contaminant concentrations in the transition zone will be considered during Remedial Design. It is also important to note that the "transition zone" is a zone of gradational change which includes both saprolite and fractured bedrock. An abrupt change to saprolite above or bedrock below is not inferred. The "transition zone" is not a consistent layer beneath the site.
44.	Page 89, top of page	Numerical ranges for the term "moderately" and other descriptive terms for observations made of the rock core are presented in the first two pages in Appendix D of the RI report. The appropriate numerical ranges have been added to the text for clarification.
45.	Page 89, top of page	The phrase "smooth to rough" is general but accurately reflects the range of unevenness observed in the joints.
46.	Page 90, Section 4.2.1, first paragraph	The range of hydraulic conductivity observed in the saprolite has been added to the text. The second paragraph in Section 4.2.1, Aquifer Description, now reads: "Hydraulic conductivity (K) values in the saprolite... ranging from 2.96×10^{-3} to 3.05×10^{-5} cm/sec". At the time slug tests were conducted, the water column in well SW101 was only 3.94 feet in thickness, which was not sufficient to conduct a valid slug test. This clarification has been added to Section 3.8.3.
47.	Page 90, Section 4.2.1, second paragraph	The low hydraulic conductivity value of 7.82×10^{-7} cm/sec reported at BW112 and the hydraulic conductivity value of 8.49×10^{-7} cm/sec reported at

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
		BW111 have been excluded from the description of the range of hydraulic conductivities of the bedrock aquifer. The text has been revised to indicate that hydraulic conductivity values of the bedrock aquifer were estimated to range from 7.09×10^{-5} cm/sec (in BW108) to 4.28×10^{-3} cm/sec (in BW1).
48.	Page 96, Section 4.2.2	A statement has been added to the third paragraph of Section 4.2.2, Ground Water Flow Directions and Gradients, describing the significance of upward and downward vertical gradients. The statement reads: "Observation of the magnitude and direction of vertical gradients provides an indication of the potential for vertical migration of contaminants from the site. The presence of upward vertical gradients reduces the potential for contaminants to move downward in the aquifer. Downward vertical gradients are expressed as positive numbers; upward vertical gradients are expressed as negative numbers".
49.	Page 96, Section 4.2.2	The hydrograph for well pair SW109/BW109 has been added to the RI.
50	Page 96, Section 4.2.2, fourth paragraph	This small degree of variation in vertical gradient is not unusual in a complex aquifer system such as that present at this site. This variation is not considered significant and therefore no speculation for the apparent head reversal at SW109/BW109 has been included in the RI report.
51.	Page 102, Section 4.2.2 top of page	This sentence indicates that the creek at SW106 is a surface water source of recharge to the saprolite at that location. Based on potentiometric maps presented in Figure 4.5 and 4.6 of the RI, ground water flowing beneath the stream at this location would originate to the west and northwest of the referenced location (SW106/BW106). Ground water originating from the contaminated part of the site would move in primarily an east-southeast direction, not toward this location along the stream.

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
52.	Page 103, end of Section 4.2.2	Use of an effective porosity value of 0.2 in the ground water flow velocity equation yields a calculated ground water velocity equal to one-half the velocity calculated using an effective porosity value of 0.1. Use of a porosity of 0.1 in the ground water velocity equation provides a maximum rate of ground water movement. The sentence has been clarified to read: "For example, if the effective porosity value is 0.2, the calculated velocity would be one-half that calculated for a porosity of 0.1. The value of 0.1 results in a high ground-water velocity which provides a maximum calculated distance of contaminant movement".
53.	Page 108, Section 5.2	Samples during Phase II of the RI were analyzed for the list of Indicator Parameters developed based on the Phase IA results. See response to comment no. 37.
54.	Page 110, Table 5.2	Table 5.2 is presented solely to provide an initial comparison between established or proposed regulatory standards and concentrations of contaminants detected in ground water at the site. The evaluation of observed contaminant concentrations as related to health-based concentrations is being addressed in the Risk Assessment, structured as part of the Feasibility Study therefore the addition of health based standards to this table is not appropriate.
55.	Page 119, Section 5.4.1	Methylene chloride has been added to the list of VOCs detected in soil samples collected from Phase IA test pits. A sentence has been added to the paragraph as follows: "Methylene chloride, 2-butanone, acetone, and toluene, listed as common laboratory artifacts, were also detected in test pit samples". Toluene has been deleted from the fifth sentence of the paragraph and listed in the new sentence since it is identified in EPA Superfund guidance as a common laboratory artifact.

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
56.	Page 119, Section 5.4.1	Methylene chloride, 2-butanone, acetone, and toluene are identified in EPA Superfund guidance as common laboratory artifacts, but were detected in test pit source characterization samples. These compounds are not being dismissed as common laboratory artifacts, but are listed on Table 5.3 as being detected in test pit samples.
57.	Page 120, Table 5.4	Table 5.4 has been modified to include analytical results for inorganics in the background soil boring and the background surface soil samples for comparison purposes. Background concentrations of volatile and semi-volatile organic compounds in soils are considered to be non-detectable for purposes of data evaluation in the RI.
58.	Page 121, Section 5.5.1	The second sentence has been reworded for clarity to read: "Vinyl chloride was the VOC detected at the highest concentration in any sample (210 µg/kg in HA5)." An additional sentence has been added to indicate that: "Vinyl chloride was also detected in soil samples from HA2, HA3, and HA4".
59.	Page 125, Section 5.6.1	Concentrations of notable occurrences of VOCs have been incorporated into the text. The text now reads: "The most notable occurrences of VOCs are: 1,1,2,2-tetrachloroethane (710 µg/kg) at SB2; 1,2-dichloroethane ranging from 680 to 4500 µg/kg at SB4; and acetone at SB2, SB3, SB4, SB5, SB6, SB7, SB8, SB9, and SB10 at concentrations ranging from 4 to 18,000 µg/kg".
60.	Page 125, Section 5.6.1	The following sentence will be amended to the referenced paragraph: "Although soil samples collected from below a depth of 27 feet were not subjected to chemical analyses, the overall distribution of VOCs in soil and ground water indicate that VOCs are present immediately beneath

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
		concentrated source areas throughout the entire vadose zone (lagoons and drum storage areas)."
61.	Page 133, last paragraph of Section 5.7.1	The complete CLP package can be provided to the Agency, if requested, for review. The analytical laboratory has confirmed that laboratory procedures were responsible for the inconsistent results, and a letter of explanation was submitted to EPA and SCDHEC on February 11, 1991. This correspondence has been added to Appendix L - Ground Water (Phase II).
62.	Page 133, last paragraph of Section 5.7.1	Results of analyses conducted on a quick turn-around basis are presented in Appendix L under the Ground Water (Phase II) section. The first table in this section of the appendix presents the results for "NON-CLP VOLATILE ORGANIC COMPOUNDS". Also refer to responses to comments No. 36 and 37.
63. & 64.	Page 136, top of page, Section 5.7.2	The last sentence of this paragraph will be replaced with the following: "During Phase II, both filtered and unfiltered ground water samples were collected from wells BW1 and SW1 during the Phase II ground water sampling event. However, the filtered sample from SW1 was broken at the analytical laboratory. Filtered and unfiltered samples from BW1 were analyzed for inorganics, but only the unfiltered sample from SW1 was analyzed for inorganics. No specific conclusions can be drawn from a comparison of the inorganic analytical results of the filtered versus unfiltered ground-water sample from well BW1. A qualitative evaluation of the turbidity of the unfiltered sample collected from SW1, however, indicates that suspended solids present in the water would contribute to the total inorganics present in the sample."

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
65	Page 136, Section 5.7.2	Data presented in the RI report clearly demonstrate that the Sprouse well is upgradient of the Site and has not been impacted by former disposal activities at the Medley Farm site. The following facts determined during the Medley Farm Site RI demonstrate that the Sprouse domestic well has not been impacted by the former Site disposal operations: • Water level measurements made in the Sprouse well, the background wells (SW1 and BW1), and the piezometer (PZ 101) located NW of the former disposal area show that the Sprouse well and the background wells are hydraulically upgradient of the Medley Farm site. • Concentrations of inorganics detected in ground water are consistent with local background levels. Where MCLs for inorganics were exceeded in downgradient monitoring wells, MCLs were also exceeded in the upgradient background wells, indicating naturally-occurring concentration of inorganics above MCLs. Inorganics found in ground water were also found in background soil samples collected in the immediate vicinity of the site. • Measurement of the total depth of the Sprouse well made during September, 1990, for this study determined the well to be approximately 64 feet deep. The total depth of the background wells installed between the Site and the Sprouse well are 65.0 feet (SW1) and 94.8 feet (BW1). Since the potential presence of inorganics or other compounds in the Sprouse well has been shown by this study not to be related to the Site, any precautions with respect to use of the well are outside of the scope of further investigative or remedial measures for this site.

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
66.	Page 137 and 138, Tables 5.8 and 5.9	Proposed and recently-promulgated MCLs have been added to Tables 5.8 and 5.9 as follows:

parameter	proposed MCL (µg/l)	New MCL (µg/l)	Superfund Cleanup Level (µg/l)
antimony	10 or 5		
beryllium	1		
cadmium		5	
chromium		100	
lead			15
nickel	100		
selenium		50	
thallium	2 or 1		

67. Pages 137 and 138, Tables 5.8 and 5.9

Exceedences of beryllium above the pMCL in wells SW1 and SW4 and lead above the Superfund cleanup level in well SW4 are now noted in the discussion of inorganics although these compounds are not site related.

Beryllium was not detected above the pMCL in the ground-water sample analyzed from BW2.

68. Page 139, Sections 5.8 and 5.9

Rather than repeat Figure 3.2, a reference back to Figure 3.2 in Section 3.4.2 has been added. Text has been added at the end of Section 5.8 as follows: "Sampling locations are illustrated in Figure 3.2 (Section 3.4.2). Sampling location RW-2/SS-2 is located downstream of the SW108/BW108 monitoring well location within the northern tributary to Jones Creek. Sampling location RW-4/SS-4 is located in Jones Creek immediately downstream from the mouth of the southern tributary into Jones Creek. These sampling locations are situated to detect potential impacts to Jones Creek from the tributaries".

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
		A sentence has been added to the end of Section 5.9 as follows: "Stream sediment sampling locations coincide with the surface water sampling locations and are also illustrated in Figure 3.2 (Section 3.4.2)".
69.	Page 143, Section 5.10.1	Field duplicates provide an indication of the precision of the analytical results by measuring the variability in detected concentrations. The sentence has been reworded to clarify this to read: "Due to the difficulty in collecting totally homogenous soil samples, variability between the original and duplicate results for soil samples is expected to be higher than the variability observed in water samples".
70.	Page 151, Section 6.0	Potential risks associated with the low levels of PCBs detected at the site will be considered in the Baseline Risk Assessment.
71.	Page 153, Section 6.1	Isolated pockets of residual source materials present at the site were limited to a few very localized areas no greater than several feet in maximum horizontal dimension and one to three inches in thickness. Figure 4.2 in the Draft Feasibility Study Report delineates the general areas where residual source materials are present. The individual pockets themselves were not delineated because they are so small.
72.	Page 153, Section 6.1 second paragraph, last sentence	See response to comment No. 57.
73	Page 154, Section 6.3, second paragraph	See response to comment No. 71. The total volume of contaminated soils present at the site is estimated to be approximately 53,00 cubic years.

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
		This estimate is included in the FS report.
74.	Page 154, Section 6.4 first paragraph	The reference to well BW101 has been corrected to reference SW101. The analytical data was checked and BW3, SW103 and SW104 were deleted from the list presented in the first sentence of Section 5.7.1. That sentence was revised to state that "VOCs were detected above CLP sample quantitation limits (SQLs) in ground-water...".
75	Page 154, Section 6.4	The total volume of ground water impacted at the site is estimated to be 24.1 million gallons. This will be presented in the FS report.
76.	Page 154, Section 6.4	VOCs in ground water are estimated to have traveled 500 to 600 feet in an east-southeasterly direction from the main disposal area of the site, in the direction of ground water flow. Concentrations observed at this distance are detectable, but below established regulatory limits. With regards to contaminants detected to the northeast, see response to comment No. 28.
77.	Page 154, Section 6.4	Within the limits of the former disposal area, ground water contamination extends from a depth of approximately 60 feet to a depth of approximately 120 feet from land surface. Two deep wells (BW111 and BW112) installed at the site demonstrated the presence of competent bedrock beginning at depths of approximately 160-170 feet beneath the site. A discussion of the vertical extent of contamination based on information from the BW105 corehole and wells BW111 and BW112 has been added to the text.
78.	Page 155, Section 6.4	The sentence has been deleted.

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
79	Page 159, Section 7.0, Item 1	The item has been modified to read: "... in ground water in the saprolite and bedrock beneath and downgradient of the former disposal area".
80	Page 159, Section 7.0, Item 3	See response to comments 71 and 73.
81.	Page 159, Section 7.0 Item 8	This conclusion is consistent with the finding of this investigation and other conclusions (items 6, 7, and 9) presented.
82.	Page 159, Section 7.0 Item 9	The item has been modified to read: "... Where MCLs for inorganics were exceeded in downgradient monitoring wells, MCLs for inorganics were also exceeded in the upgradient background wells, indicating naturally-occurring concentrations of inorganics above MCLs. Inorganics detected above MCLs in monitoring wells at the site are not related to former disposal activities at the Medley Farm Site".
83	Page 160, Section 7.0	The need for additional sampling will be evaluated during the initial stages of Remedial Design activities.
SCDHEC 1	General	Analytical parameters used in all media sampled during each phase of Remedial Investigations performed at the Medley Farm Site were carefully selected to be representative of potential contamination at the Site and were approved by the Agency prior to the initiation of each sampling effort. In accordance with the original Work Plan approved for this RI/FS, the results of TCL/TAL analyses performed during Phase IA were used to develop a list of indicator parameters for each media of interest. Following Agency approval, these indicator parameters were used for analyses performed during Phase IB and Phase II of the RI.

COMMENT	DRAFT REPORT REFERENCE	RESPONSE

Based upon the evaluation of Phase IA analytical results, ground-water analyses performed during Phase IB and Phase II were restricted to VOCs. The selection and approval by the Agency for the use of VOCs as indicator parameters was based upon the following conclusions of Phase IA analyses:

- VOCs were the only contaminants detected in TCL/TAL analyses performed on ground-water samples analyzed during Phase IA.
- Contaminants detected in soils consist primarily of VOCs and SVOCs. Although pesticides and PCBs were detected, they were only found at low levels in a few samples.
- VOCs are the most mobile contaminants present at the site in both the soil and ground water media.
- No contaminants were detected in TCL/TAL analyses of surface water or stream sediment samples.

Analyses performed during Phase IB and Phase II show that TCL/TAL analyses performed during Phase IA, which formed the basis of the selection of VOCs for subsequent ground-water analyses, included samples from the three wells where the highest concentrations of volatile organic compounds in ground water occur (SW3, SW4 and BW2).

No semi-volatile organic compounds or other contaminants (except VOCs) were detected in those ground-water samples above CLP quantitation limits. These facts supports the RI conclusion that VOCs are the only contaminants present in ground water.

See response to comment number 83.

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
SCDHEC 2	General	The extent of ground-water contamination has been delineated to the extent necessary for the RI/FS. The need for additional sampling or additional monitoring wells will be considered during Remedial Design. See also response to comments No. 28 and 76.
SCDHEC 3	General	Sampling and analysis of monitoring wells SW1, BW1, SW106 and BW4 was addressed in detail in correspondence submitted to EPA and SCDHEC, dated February 11, 1990. This correspondence shows that the inconsistencies in analytical results were caused by a laboratory error. This correspondence will be added for additional clarification to Appendix L Ground Water (Phase II) of the final RI report. See also response to comments 61 and 83.
SCDHEC 4	Page 129, Table 5.7	Table 5.7 presents analytical results for Phases IA, IB, and II. For brevity, only compounds reported to be present above quantification limits and considered to be valid after the data validation process are presented in the table. See response to comment SCDHEC 3.
SCDHEC 5	Figures 5.3, 6.2, 6.3 and 6.4	Tables presenting the actual sample numbers corresponding to analyses presented on these figures will be added for clarification. The analytical data shown on figure 5.3, 6.2, 6.3, and 6.4, include all validated data from CLP analyses performed during the Phase II RI. The only data not included on those figures are the data shown to be invalid due to laboratory error at Radian.

COMMENT	DRAFT REPORT REFERENCE	RESPONSE
		All analytical data shown on Figures 5.3, 6.2, 6.3 and 6.4 are from CLP analyses performed during Phase II of the RI. Samples analyzed by Radian were collected during the interval of 18 September through 16 October, 1990. Samples analyzed by EcoTek were collected on 26 and 27 November. Samples were collected from four wells (BW1, SW1, BW4 and SW106) in November and subjected to CLP-VOC analysis by EcoTek due to an obvious data discrepancy. Radian subsequently acknowledged that contaminants present in CLP analyses performed by Radian on samples collected from those wells during September and October were the result of cross contamination which occurred in the laboratory. It is important to note that this cross contamination problem would not impact samples shown to be clean or to have lower levels of contamination. The results of analyses performed by EcoTek were therefore used for subsequent RI evaluations and are the data shown for those wells on the referenced figures. Based on this data validation process, and the fact that an insignificantly short time elapsed prior to re-sampling, data included on Figures 5.3, 6.2, 6.3 and 6.4 present an accurate portrayal of contaminant concentration in ground water sampled at the Site during Phase II of the RI. See response to comment SCDHEC 3.
SCDHEC 6	Section 5.7	The following paragraphs have been added to the text for clarification: "Discrete interval sampling was conducted at well BW105 as described in Section 3.9.4 (Phase II ground water sampling). Ground-Water samples collected from discrete intervals in this well were identified using the following nomenclature:

COMMENT	DRAFT REPORT REFERENCE	RESPONSE

Sample No.	Interval Sampled
BW105-1X	90.0 to 102.7
BW105-1Y	110.8 to 123.5
BW105-1Z	127.2 to 140.0

Sampling intervals are expressed as depth in feet below ground surface.

VOCs detected in BW105-1X included 1,1,1-trichloroethane at 90 µg/l, chloromethane at 110 µg/l, 1,1-dichloroethene at 27 µg/l, and benzene at 95 µg/l. Only one VOC, 1,1,1-trichloroethane, was detected in sample BW105-1Y, at an estimated concentration of 15 µg/l. Two VOCs (1,1,1-trichloroethane at 80 µg/l and 1,1-dichloroethene at

39 µg/l) were detected in sample BW105-Z. The results of these analyses are summarized in Table 5.7. Complete analytical results for the discrete interval sampling are presented on the second page (first data table) of Appendix L - Ground Water (Phase II)".

3 10 0084

SIRRINE ENVIRONMENTAL CONSULTANTS

CORE BORING REPORT

BORING NO. BW106

PROJECT: MEDLEY FARMS RI PHASE II
CLIENT: MEDLEY FARMS STEERING COMMITTEE
CONTRACTOR: ATLANTA TESTING AND ENGINEERING
EQUIPMENT USED: CME 75

JOB NO: G-8026
PAGE NO: 1 of 2
LOCATION: See Plan
ELEVATION: 592.51
DATE START: 9/24/90
DATE FINISH: 9/27/90
DRILLER: P. Bergman
PREPARED BY: J. Gillespie

	CORE BARREL	ORIENTATION
TYPE	HQ Triple Tube	[X] VERTICAL [ ] INCLINED
ID	~ 2.0 in.	[ ] HORIZONTAL BEARING ANGLE FROM VERTICAL

DEPTH IN FEET	DRILL RATE MIN. PER FOOT	CORE NO. / DEPTH RANGE	RECOVERY FT.	RECOVERY %	RQD	FIELD CLASSIFICATION AND REMARKS
						54.75 ft.
		54.75 C1 59.75	3.2 / 5.0	64	0	Hard, very slightly weathered, light gray, medium grained, QUARTZ FELDSPATHIC SCHIST; hard milky white quartz layer in upper 2-3 inches.
	6.5					
60	--	59.75 C2 60.75	1.0 / 1.0	100	50	Hard, very slightly weathered, light gray, medium-coarse grained QUARTZ FELDSPATHIC SCHIST; phyllitic sheen; close fractures, moderately dipping foliation.
	6.3	60.75 C3 62.45	1.7 / 1.7	100	59	Hard, very slightly weathered, light gray, medium to coarse grained QUARTZ FELDSPATHIC SCHIST; phyllitic sheen; fractures are close to very close, moderate to steeply dipping foliation; smooth breaks parallel to foliation.
	6.5					
	--	62.45				
	12.3	C4	2.9 / 4.9	59	16	Note: Zones of muddy water return & loss circulation during drilling also light purple return water.
65	4					
	--	67.53				
	--	67.53				Moderately hard, moderately to very slightly weathered, light blue gray, coarse grain, QUARTZ FELDSPATHIC SCHIST; very close to close fractures; breaks along plane of schistosity or foliation; shallow to moderately dipping, foliation; smoky gray quartz lenses, garnetiferous, phyllonitic?
	17.5	C5	2.5 / 2.5	100	0	
	16.3	69.86				
70	--	69.86				Moderately hard, slight to very slightly weathered, light gray, coarse grain, QUARTZ FELDSPATHIC SCHIST; very close fractures; parting cleanly along schistosity or foliation planes, few cross cutting iron stained fractures, zones of garnets, crenulation phyllonitic?
	8	C6	4.00 / 4.29	93	0	
	5.3					
	8.2	74.15				
75	--	74.15 78.55	1.9 / 4.40			See page 2 for Run #7.

FIELD HARDNESS		BEDDING		DISCONTINUITIES JOINT/SHEAR/FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	V. CLOSE	<2"	FRESH	MOD. SEVERE
HARD	- SCRATCHES DIFFICULT	THIN	2" - 12"	CLOSE	2" - 12"	V. SLIGHT	SEVERE
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12" - 36"	MOD. CLOSE	12" - 36"	SLIGHT	V. SEVERE
SOFT	- GROOVES	THICK	36" - 120"	WIDE	36" - 120"	MODERATE	COMPLETE
V. SOFT	- CARVES	V. THICK	>120"	V. WIDE	>120"		

BORING NO. BW112

Foster Dixiana Sand, Inc.

3 10 0035

Filter Sands

Typical Screen Analysis

Percent Retained Cumulative

U.S. Mesh	FX99	FX50	S.B.Filter (wet)
6	0.0		0.0
8	4.6		0.0
10	20.0		0.5
12	62.7		1.5
14	93.2	0.0	4.6
16	98.9	1.0	8.6
18	99.5	9.5	18.2
20	99.8	26.5	31.4
25	99.9	45.9	47.6
30	99.9	74.5	63.9
35	100.0	92.4	79.9
40	100.0	97.8	89.4
45		99.3	94.3
50		99.8	97.1
70		99.9	99.1
Pan	100.0	100.0	100.0
Effective Size	1.431	0.513	0.416
Uniformity Coefficient	1.299	1.466	1.863

Percent Retained Per Sieve

U.S. Mesh	FX99	FX50	S.B.Filter (wet)
6	0.0		0.0
8	4.6		0.0
10	15.4		0.5
12	42.7		1.0
14	30.5	0.0	3.1
16	5.7	1.0	4.0
18	0.6	8.5	9.6
20	0.3	17.0	13.2
25	0.1	19.4	16.2
30	0.0	28.6	16.3
35	0.1	17.9	16.0
40	0.0	5.4	9.5
45		1.5	4.9
50		0.5	2.8
70		0.1	2.0
Pan	0.0	0.1	0.9

Sandblasting Sands

3 10 0086

Typical Screen Analysis

Percent Retained Cumulative

U.S. Mesh	BX8	BX12	BX30	BX40
6	0.0			
8	1.2	0.0		
12	10.3	0.6		
16	26.9	10.6		
20	48.7	33.5	0.1	0.1
30	80.6	68.6	6.0	1.2
40	96.4	92.1	31.4	12.9
50	100.0	99.7	66.7	45.7
70			87.6	76.9
100			96.1	92.2
140			99.2	98.8
200			99.8	99.9
270			100.0	100.0
Pan	100.0	100.0	100.0	100.0

Percent Retained Per Sieve

U.S. Mesh	BX8	BX12	BX30	BX40
6	0.0			
8	1.2	0.0		
12	9.1	0.6		
16	16.6	10.0	0.0	0.0
20	21.8	22.9	0.1	0.1
30	31.9	35.1	5.9	1.1
40	15.8	23.5	25.4	11.7
50	3.6	7.6	35.3	32.8
70			20.9	31.2
100			8.5	15.3
140			3.1	6.6
200			0.6	1.1
270			0.2	0.1
Pan			0.0	0.0